

Balance the Ambition and Equity: Advanced Climate Equity Process (ACEP)



*—The Alternative Solutions for Top-Down Approaches with
Carbon Assets and Bankruptcy Rules for Long Term Pledges*

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1 *Outlines*



1 — **Advanced Climate Equity Process (ACEP)**

2 — **Alternative Solutions for Top-Down Approaches**

3 — **Case Study 1: Colored Representative Emission Pathways**

4 — **Case Study 2: Climate Efficiency and Equity Modeling**

5 — **Case Study 3: Regional Practices in China**

Unresolved but Fundamental Issue

Along with the 20 years negotiations under the United Nations Framework Convention on Climate Change, the principle of Climate Equity should be no longer just to stay within the theory and framework level, but more to step into the substantive and operational level, with a clearer political, economic, environmental and social significance and identity, and also multi-polar, inclusive and mutually beneficial, so that the Parties are capable of moving to the pragmatic cooperation to enhance actions guided by the principles of the Climate Equity.

The ultimate objective of the Convention can be fulfilled by not only "Enhance the Mitigation Ambitions" but also "Improve the Climate Equity".

Conceptual Framework of Climate Equity

The climate equity framework in the current international climate regime is consist of the principles of Equity, Common but Differentiated Responsibilities and Respective Capabilities, and Equitable Access to Sustainable Development, respectively described the equity in the context of climate change from justice and ethical perspectives.

- *The CBDR is the central and comprehensive one, which track back to the origins of the climate change, mainly to solve the issue of historical responsibility of Parties;*
- *The RC is based on the current circumstances, mainly to address the differences in the development stage of Parties;*
- *The EASD is future-oriented, mainly to consider the right for development and long term issues.*

So historical, current and future, those together form and shape the climate equity framework for UNFCCC regime, and also be the specific definition for the Durban Platform "guided by the principles of the Convention".

Advanced Climate Equity Process

**Three Step Process
Along with the 2013-15 Review
Structured Expert Dialogue
As Spin-off Group**

**Periodical Reports
IPCC/Review**

2013-COP19

Conceptual Inception

To develop a “new”, neutral, inclusive but Convention-based conceptual idea of climate equity

2014-COP20

Operational Criteria

To open the door for various methodologies to operationalize the climate equity

2015-COP21

Advanced Implementation

To be rules for elements in the 2015 outcome

Step 1: *Develop the Consensus of Equity*

Integrated ideas of climate equity can be expected to seek cooperation rather than confrontation in the future, which is Four Cardinal Principles for preliminary judgments as follows:

John Rawls

Equity on Rights

- Whether We Sufficiently Protect the Basic Equitable Development Rights of Parties, with Full Recognition of the Differences among Parties in Responding to Climate Change on the Manners and Contents due to the Differences in Historical Responsibility, Developmental Stage, and Special Circumstances?

Amartya Sen

Equity on Capabilities

- Whether We Effectively Enable the Parties to Enhance the Feasible Capabilities to Respond to Climate Change and Green and Low Carbon Development, Genuinely Taking Equitable Access to Sustainable Development as the Fundamental Orientation of the International Climate Regime?

Jeremy Bentham

Equity on Utilities

- Whether We Efficiently Establish the Balanced Mechanism and Comprehensive Solutions to Share Costs and Benefits among Parties, Avoiding the Additionally Excessive Adverse Impact on Social and Economic Development?

Equity on Procedures

- Whether We Practically Ensure All the Parties the Full, Autonomously, Just and Equal Participation in the Consultation and Decision Making, so as to Promote the Full, Effective and Sustained Implementation of the Convention and the Achievement of all the above Substantial Equities?

Step 2: *Review the Alternative Solutions*

Reevaluate the Carbon Emissions in Economics

Interaction between Growth and Emission

$$\begin{aligned}
 Y_{n,t} &= a_c \left(\alpha (VA_{n,t})^\rho + (1 - \alpha) (a_{ce} CE_{n,t})^\rho \right)^{\frac{1}{\rho}} \\
 &\quad \text{Carbon Assets} \\
 VA_{n,t} &= \left(\beta (a_k K_{n,t})^{\rho_{va}} + (1 - \beta) (a_l L_{n,t})^{\rho_{va}} \right)^{\frac{1}{\rho_{va}}} \\
 Y_{n,t} &= C_{n,t} + I_{n,t} + M_{n,t} + A_{n,t} + D_{n,t} + NX_{n,t} + NCF_{n,t} \\
 &\quad \text{Expenditure Of Climate Change}
 \end{aligned}$$

!!! Conceptual Approaches to Carbon Security and Equity

Financial Transfers



Step 3: *Evaluate the Carbon Emissions*

Act...

Learn...

then Act...

Discount to now

Decision Making in 2015

Discount to now

Historical Emissions

Future Emissions

Carbon Debt

e.g. Governmental Debt

+r

Carbon Investment

e.g. Governmental Investment

-r

Carbon Capital

e.g. Attached to Infrastructures, Buildings, Vehicles, Products (Life Circle)

-r

Carbon Investment

e.g. Governmental Investment

-r

Depletable Resource

e.g. Coal, Oil

-r

Depletable Resource

e.g. Coal, Oil

+r

Scenarios for Radicalism, Skepticism and Pragmatism

e.g. Nicholas Stern, William Nordhaus

Step 4: ***Build the Common Rules***

Negotiate on Carbon Borders as Geographic or Trade Boundaries

Redistributing the Carbon Assets

- New Budget Methodologies: Neutral, Inclusive but Convention-based
- Negotiations on Limited Numbers

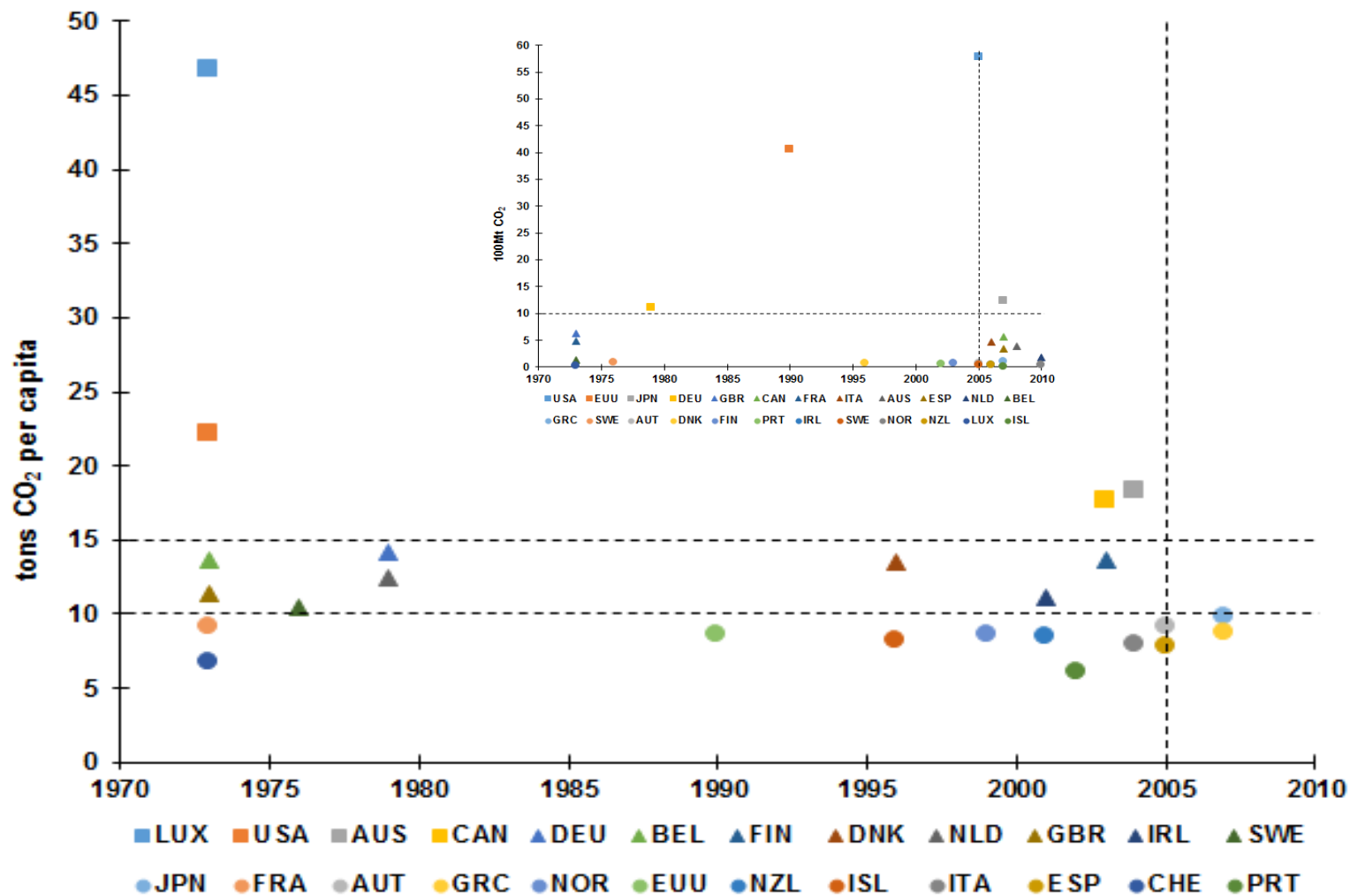
Restructuring the Carbon Assets

- Offsets by Means of Implementations, e.g. Financial Transfers
- Buying, Selling, Borrowing, Merging ... as Financial Products

Connotation and Denotation for Carbon Bankruptcy

- Big Carbon Deficit, Additionally Excessive Adverse Impact on Social and Economic Development, Financial Crisis...
- Carbon Assets Liquidation, Carbon Aiding, Carbon Interests...
- Limited Global Market Status for Carbon Bankrupt Countries

Case 1: Colored Representative Pathways



Circumstance in Industrialized Countries

	USA	CAN	AUS	DEU	GBR	BEL	JPN	ITA	ESP	EU	OECD	Annex I	Annex II
Peaking Year	2005	2007	2008	1979	1973	1973	2007	2006	2007	1990	2007	2007	2004
Emission per capita (Mt)	5772	569	386	1104	637	133	1242	464	344	4050	13131	14249	11319
GDP per capita (US\$/t)	42414	36180	38397	22229	18831	19620	37213	30972	27139	21218	31324	29175	36489
Urban Population (%)	80.73	80.29	88.70	72.79	77.46	94.23	87.80	67.71	76.93	70.39	70.07		
Carbon Intensity (kg/US\$)	0.46	0.48	0.46	0.64	0.60	0.70	0.26	0.25	0.28	0.40	0.35	0.38	0.35
TPES per capita (toe)	7.83	8.25	5.72	4.69	3.88	4.73	4.03	3.08	3.21	3.46	4.59	4.74	5.47
EO per capita (kWh)	14411	19401	11187	5987	5004	4176	8809	5220	6725	5430	8913	8951	10361
GDP per capita (US\$-PPP)	42414	36124	36215	20619	16280	17537	31660	28737	28530	20409	30905	29347	34150
	2047	2041	2041	2026	2022	2023	2037	2035	2035	2026	2037	2035	2040
China Level (US\$-PPP)	42001	35682	35682	20187	16507	17431	31129	28915	28915	20187	31129	28915	34550

Green = Yellow + Blue?

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- **Red Label Countries**, such as United States, Canada, Australia. The per capita CO2 emission in those countries usually stay high over 15 tons, about 3/4 of which have reached emission peaking after 2005 and their peaking are deemed as unstable yet;

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- **Yellow Label Countries**, such as Germany, United Kingdom and Belgium, all from Europe. The per capita CO2 emission in those countries once stayed above 10 tons but now usually go below that level, about 3/4 of which have reached emission peaking naturally in the 1970s far before the global climate policy interference and their peaking have been identified as stable and sustainable;

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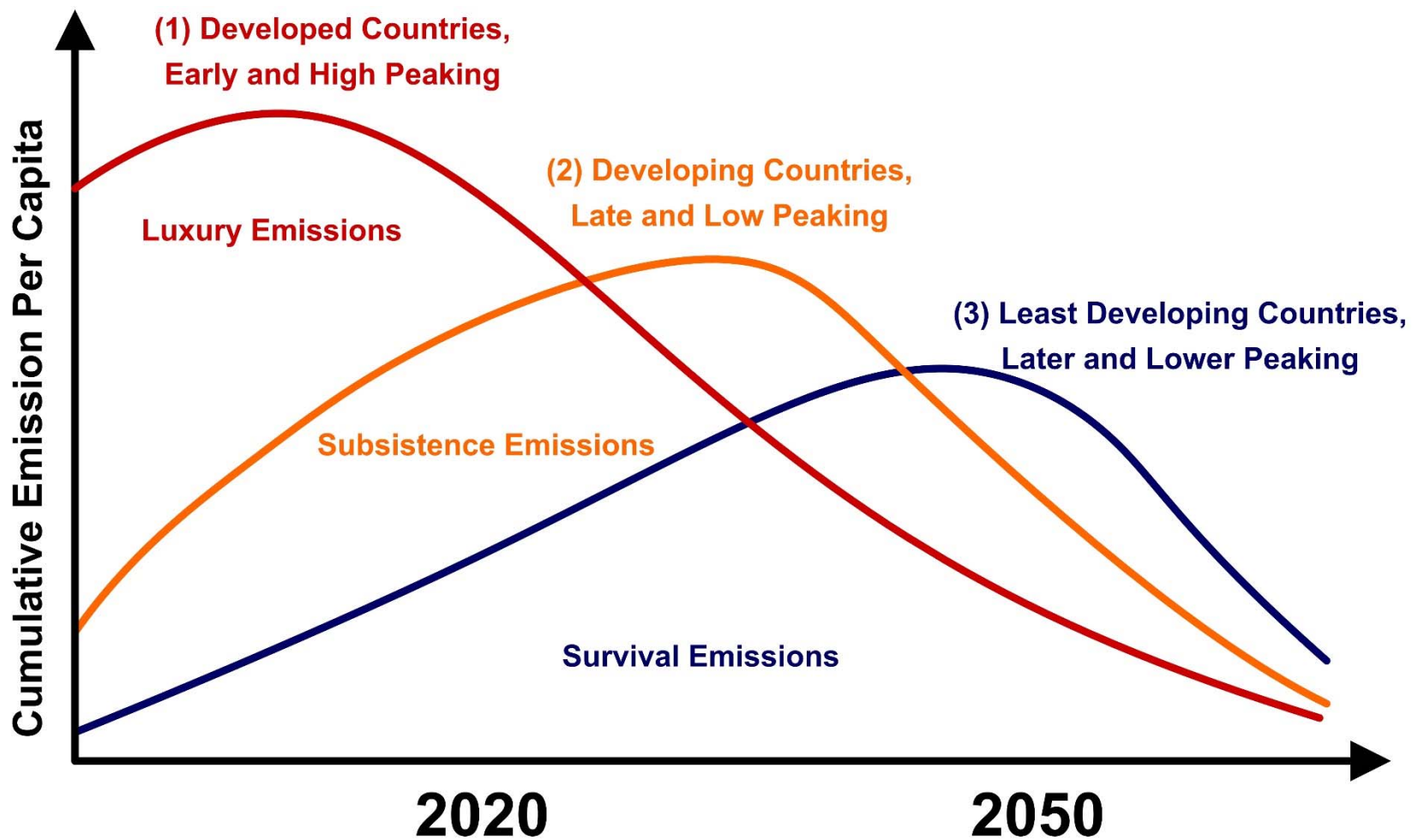
- **Blue Label Countries**, such as Japan, Italy and Spain. The per capita CO2 emission in those countries usually stay below 10 tons, about 3/4 of which have reached emission peaking after 2005 and their peaking are deemed as unstable as well.

What is the "Differentiated"?

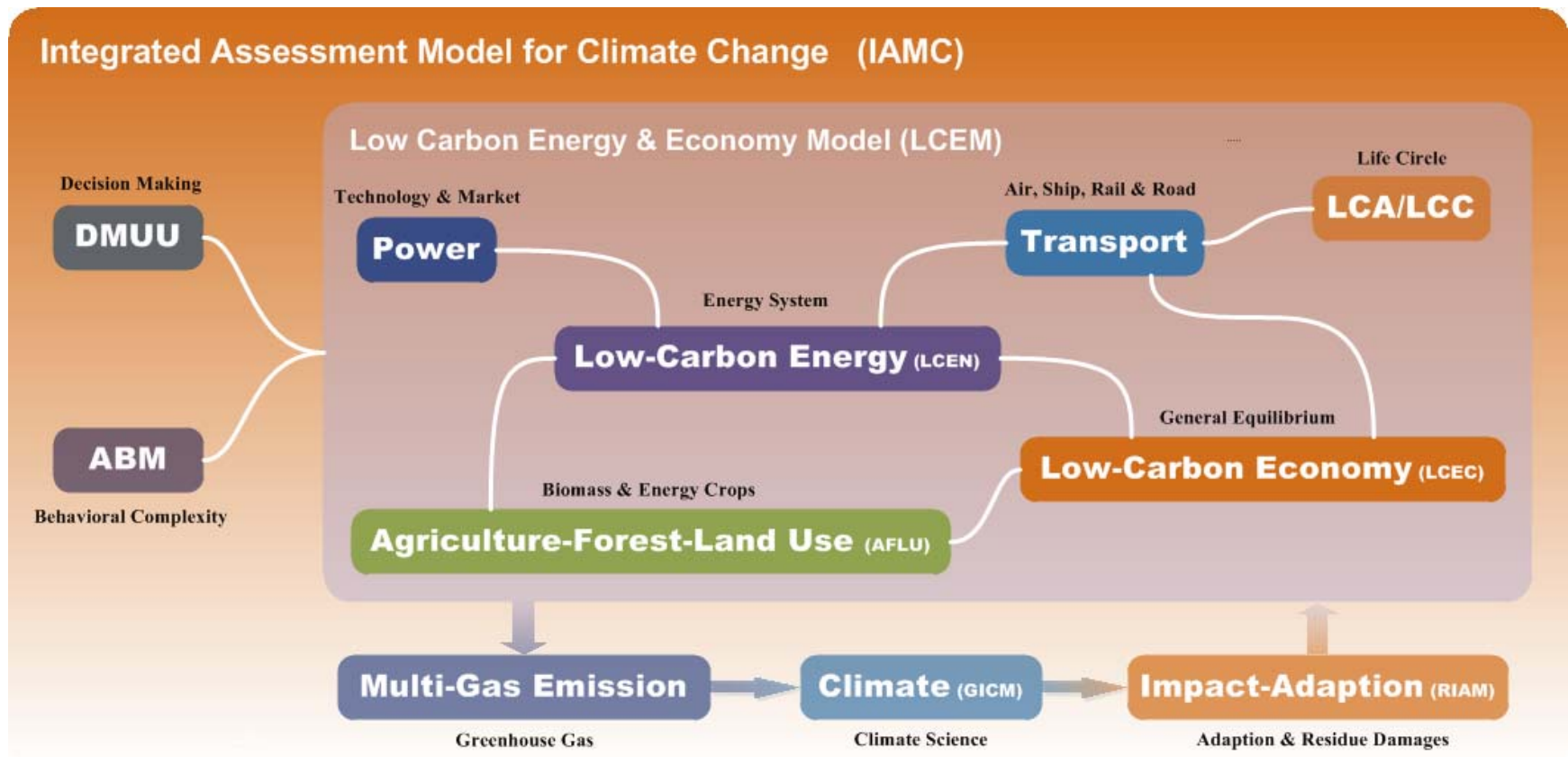
When we refer to the climate equity, we should first admit and agree that the Parties in the different stages and different level of socio-economic development undoubtedly will have a large difference in the ways, goals, focuses and difficulties to address climate change.

- *For the developed and industrialized countries, their major tasks are to reflect and rethink the traditional development pathways, through the means of technological and institutional innovation, the transformation of production and consumption patterns, to achieve the significant reduction of the current high level of carbon emissions, and bear the corresponding historical responsibility and obligations, compensate and help developing countries cope with climate change;*
- *For developing countries, their major tasks are to avoid repeating the traditional industrialization pathways as developed countries with high consumption and emission, and avoid excessive carbon emissions due to rapid economic growth, and gradually explore a novel model of low carbon sustainable development for the modernization process at a relatively low level of carbon emissions, and to balance economic development, social progress and environmental protection.*

Gradient Convergence of Emissions



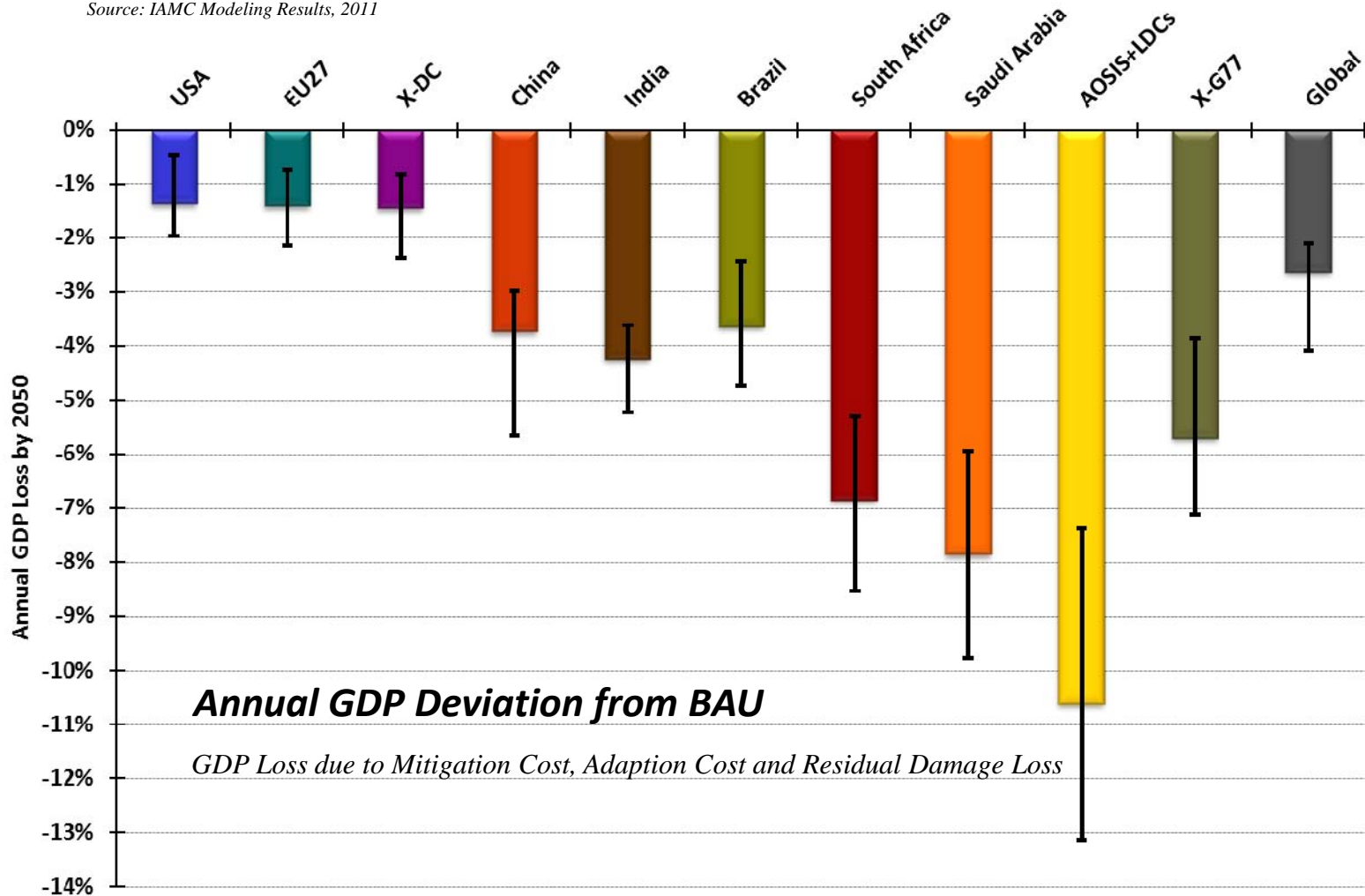
Case 2: Integrated Assessment Remodeling



The comprehensive framework to describe the interaction of human and natural systems, especially the complex relationship between economic, energy and climate change

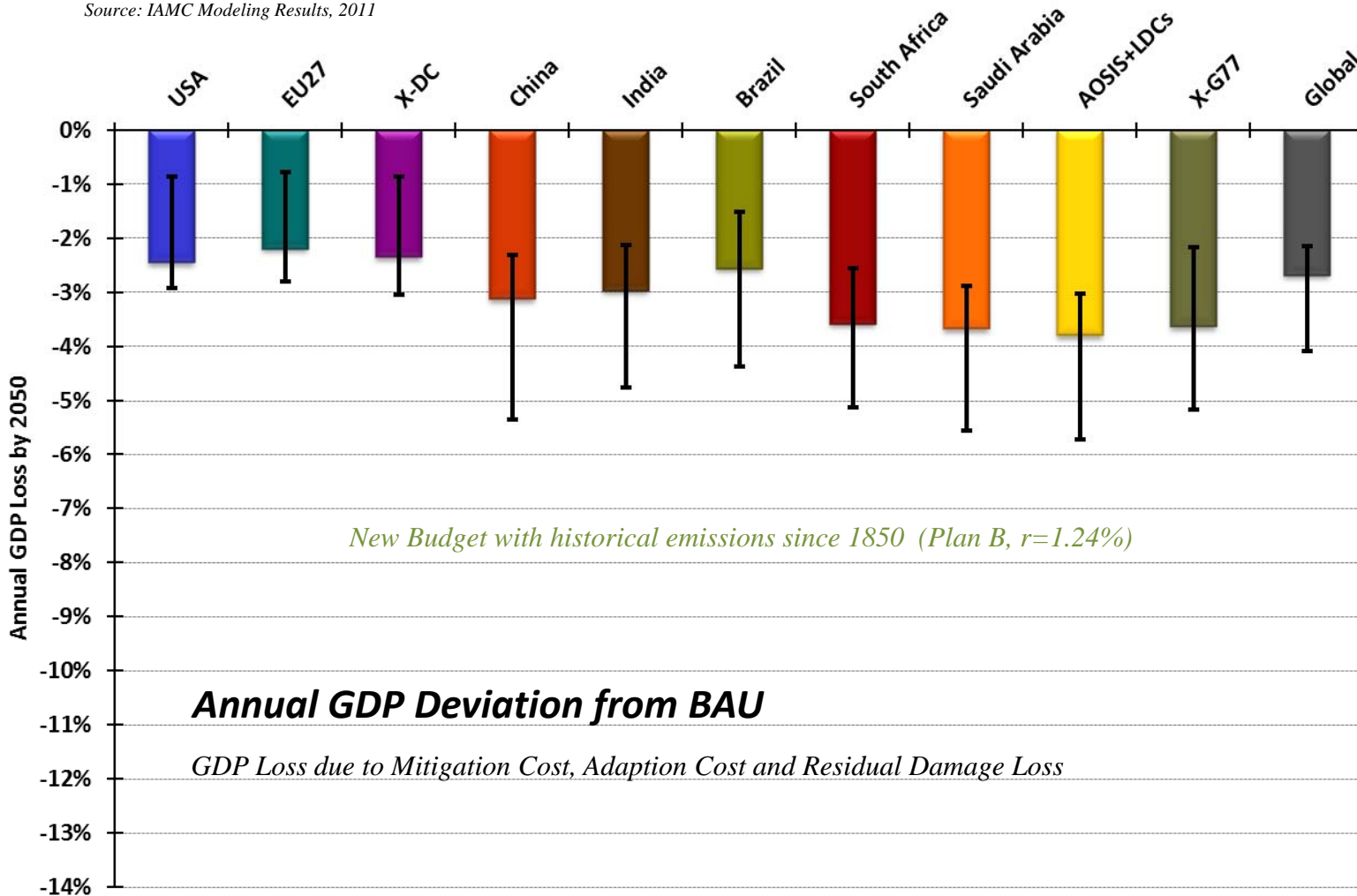
Climate Inequity but Efficiency Scenarios

Source: IAMC Modeling Results, 2011



Climate Inequity and Efficiency Scenarios

Source: IAMC Modeling Results, 2011



LTGG for both Efficiency and Equity

Top-down



(1) Global Goals for Carbon Inequity Reduction to **50%** by 2050 (**below 325 billion tons of CO₂e**), and implications for means of implementations and supports.

(2) Balanced outcome for Durban Platform which is both appealing to “Improve the Climate Equity” and “Enhance the Mitigation Ambition”.

(1) If we didn't improve the climate equity, the unfair allocation is approaching nearly **one trillion tons of CO₂e**, and inequitable distribution of emissions accounted for about **1/3** of total global emissions;

(2) If we harmoniously traded off the climate efficiency and equity, the solution would annually bring us an additional cost of below **0.5% of the global GDP**, about \$200 to 1,000 billion per year averagely since 2020.



Bottom-up

Case 3: Carbon Functional Zones

An Example of Considering the Circumstances:

1. High Carbon Zones

e.g. Fossil Fuel Supply, Manufacture Regions

2. Low Carbon Zones

e.g. Industrialized Regions

3. Carbon Sink Zones

e.g. Forest Regions

Policy Recommendation:

1. Differentiated Emission Caps

2. Carbon Compensation Mechanism

A City in Southeast of China



Key Messages

- If we really wanna jump out of the Climate Security and Equity Dilemma, we should do something, such as Advanced Climate Equity Process (ACEP) with alternative Solutions for Top-Down Approaches.
- Climate catastrophe occurs not only from the greenhouse gas emissions, but from inequalities built into mechanisms for distributing the carbon assets or emission entitlements.
- Here we further proposed the Global Goals for Carbon Inequity Reduction to 50% by 2050, Gradient Convergence of Emissions per capita and also regional carbon function policies for the balanced outcome for Durban Platform both appealing to “Improve the Climate Equity” and “Enhance the Mitigation Ambition”.



Thanks for Your Attention!

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